> "...it goes without saying that the other and especially the highermost hanger means will not include gas feed means P, since introduction of the inert gas into or adjacent the lower end LE of conveying conduit CC is of the essence of the present invention."

The present invention does not require an inclined conduit, and does not require that the gas be delivered at the lower part of the metal moving conduit. See for example the embodiments of Applicant's Figures 12 (gas delivered horizontally), and figure 19, (gas delivered downwardly) from the upper part of the conduit).

Applicant does not rely solely on the creation of bubbles in moving the metal. The high-pressure gas jet defined in pending claims of 1, 2, 4-11, and 13-27 can move the metal upwardly, horizontally or even downwardly. This is because the momentum of the gas jet is relied upon for moving the metal.

Areaux does not teach of either introducing a gas jet into the metal conveying conduit, or introducing the gas jet in the direction of the metal moving passage along the axis of motion of the metal as defined in amended claim 1. Areaux does not teach of using a gas jet momentum, only gas bubbles for moving the metal. See for example Areaux's Figures 2, 3, 5, 7, 10, and 18 which clearly show the gas introduced at right angles to the metal flow. Figures 13 and 14 suggest that the gas is introduced in a direction opposite to the metal flow. There is no suggestion of introducing the gas in the form of a jet in the direction of the metal flow because Areaux relies solely on the bubble phenomena for

raising the gas. If you rely solely on bubbles, it makes no difference what direction the gas is introduced, and the gas must be introduced into the lower part of the conduit.

Applicant's amended claims clearly define a metal moving apparatus in which the metal can be raised, moved horizontally without an incline, or pushed downwardly. Obviously, bubbles will not push the metal downwardly. A gas jet will move the metal downwardly if it is introduced in the direction of the metal movement. In fact, as shown in Areaux's disclosure, a gas jet will tend to form a blockage at the point it is introduced. If the gas is introduced as a gas jet at right angles or downstream of the metal flow, it will tend to push the metal toward the inlet end as well as toward the outlet end of the conduit.

When employed for raising the metal, a gas jet gradually coalesces to form bubbles so that the bubble phenomenon cooperates with the gas momentum to move the molten metal. The transfer to the metal of the gas momentum provides the energy for moving the metal.

Claims 27, 30, 31, 32 and 36, which refer to the convergent/divergent configuration in the metal-moving conduit, causes the gas jet to be forcibly diffused into the metal. The gas then coalesces in a series of bubbles because of the deceleration of the gas and the surface tension. These structural limitations are not suggested by Areaux. The structure defined in the amended claims clearly provides special advantages and functions not suggested by the cited art.

Accordingly, the application is now believed to be in condition for allowance and such action is requested.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8 (a)

I hereby certify that the foregoing Response is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Box Non-Fee Amendments (PATS), Commissioner of Patents and Trademarks, Washington, D.C. 20231 on May 4, 1999.